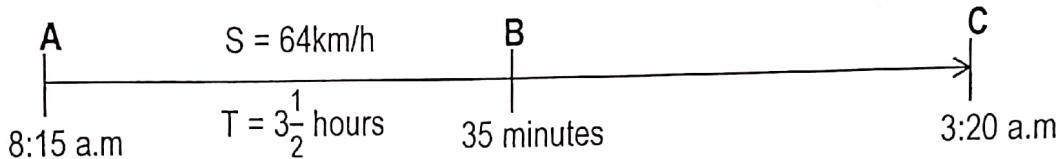


**Example 2**

A motorist started his journey for town C via town B from town A at 8:15 a.m. He travelled at a speed of 64km/h for $3\frac{1}{2}$ hours to town B. He rested for 35 minutes then continued to town C where he reached at 3:20 p.m. At what speed did the motorist travel to C from B if C is 404km away from A?

Distance from A to B

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\begin{aligned}\text{Distance} &= \frac{84\text{km}}{1\text{h}} \times 3\frac{1}{2}\text{h} \\ &= 84\text{km} \times \frac{7}{2}\text{h} \\ &= 224\text{km}\end{aligned}$$

Arrival time at B

$$\begin{array}{r} 8 : 15 \\ + 3 : 30 \\ \hline 11 : 45 \text{ a.m.} \end{array}$$

Departure time from B

$$\begin{array}{r} 11 : 45 \\ + 35 \\ \hline 12 : 20 \text{ pm} \end{array}$$

Time taken from B to C

Hours	Minutes
3	20
+ 12	00
15	20
- 12	20
3	00



$$\text{Time} = 3 \text{ hours}$$

Distance from B to C

$$404\text{km} - 224\text{km} = 180\text{km}$$

Speed

$$\text{Speed} = \text{Distance} \div \text{Time}$$

$$\begin{aligned}\text{Speed} &= 180\text{km} \div 3\text{h} \\ &= 180\text{km} \div \frac{3}{1}\text{h} \\ &= 180\text{km} \times \frac{1}{3}\text{h} \\ &= 60\text{km/h}\end{aligned}$$

Exercise

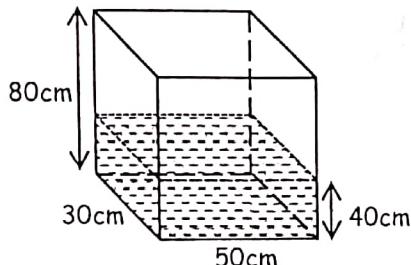
1. A motorcyclist leaves home at 10:00 a.m. for Gomba which is 45km away, riding at 16km per hour. At 10:15 a.m., he gets a puncture and delays for 15 minutes. At what speed must she cover the remaining journey in order to reach Gomba at 11:00 a.m.?
2. Town Z is 220km away from town X. A taxi left town X at a speed of 40km per hour for 3 hours to town Y. At what speed must it travel to reach town Z in 2 hours?
3. A pastor left home at 7:45 a.m. on his bicycle travelling at a speed of 8km/h. After 45 minutes, his bicycle broke. He spent 15 minutes repairing it. At what speed must he travel in order to reach church at 9:30 a.m. if the church is 15km away from his home?



TOPIC 10: LENGTH, MASS AND CAPACITY

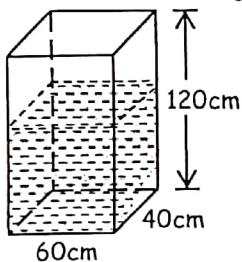


9. The tank below contains water up to the height of 40cm. It is a third full of water. If Magato pours more water in the tank, only 15 litres will be needed to fill the tank.



Find the new height of water in the tank.

10. The tank below is $\frac{5}{8}$ full of water.



- a) How many litres of water are in the tank?
b) Kadama used 84 litres of water, find the new water level.



Changing cubic metres into litres and vice versa

Example 1

Change 14m^3 into litres.

m^3 to cm^3

$$1\text{m} \times 1\text{m} \times 1\text{m} = 100\text{cm} \times 100\text{cm} \times 100\text{cm}$$

$$1\text{m}^3 = 1000000\text{cm}^3$$

$$14\text{m}^3 = 14 \times 1000000\text{cm}^3$$

$$14\text{m}^3 = 14000000\text{cm}^3$$

cm^3 to litres

$$1000\text{cm}^3 = 1 \text{ litre}$$

$$14000000\text{cm}^3 = \frac{14000000}{1000} \text{ litres}$$

$$14000000\text{cm}^3 = 14000 \text{ litres}$$

Example 2

Change 25 litres into cubic metres.

Litres to cm^3

$$1 \text{ litre} = 1000\text{cm}^3$$

$$25 \text{ litres} = 25 \times 1000\text{cm}^3$$

$$25 \text{ litres} = 25000\text{cm}^3$$

cm^3 to m^3

$$100\text{cm} \times 100\text{cm} \times 100\text{cm} = 1\text{m} \times 1\text{m} \times 1\text{m}$$

$$1000000\text{cm}^3 = 1\text{m}^3$$

$$25000\text{cm}^3 = \frac{25000}{1000000}\text{m}^3$$

$$25000\text{cm}^3 = 0.025\text{m}^3$$

Exercise

1. Change the following into litres.

a) 8m^3

d) 0.75m^3

g) $2\frac{1}{2}\text{m}^3$

b) 7m^3

e) 0.12m^3

h) $\frac{3}{4}\text{m}^3$

c) 16m^3

f) 0.004m^3

i) $1\frac{2}{5}\text{m}^3$

2. A rectangular water tank is 3m by 2.5m by 5m.

- a) Calculate its volume in cubic centimetres.

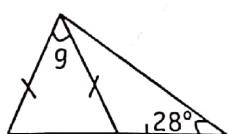
- b) How many litres of water does it hold when full?

TOPIC 7: GEOMETRIC CONSTRUCTION

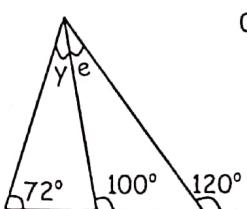


4. Find the value of the unknown angles.

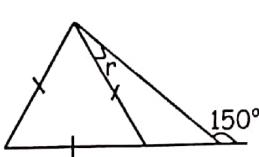
a)



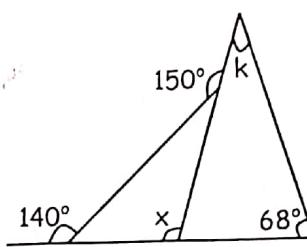
b)



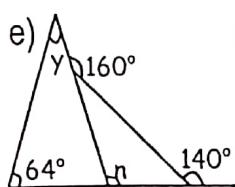
c)



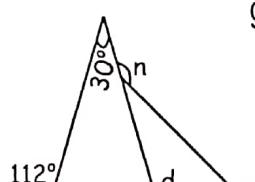
d)



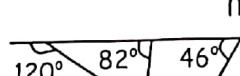
e)



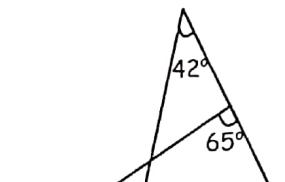
f)



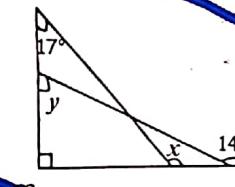
g)



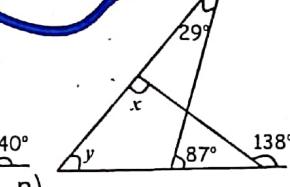
h)



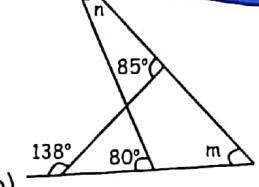
i)



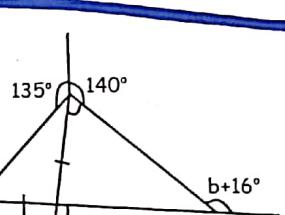
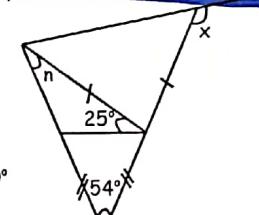
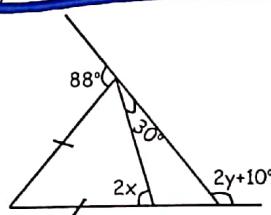
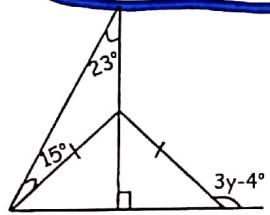
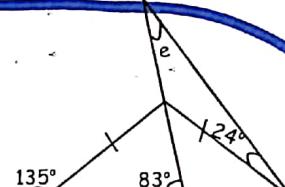
j)



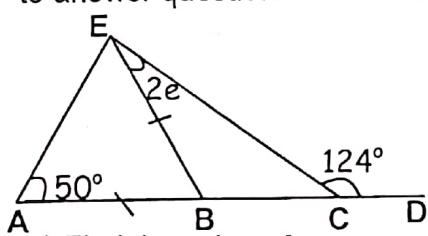
k)



l)

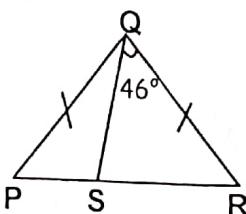


5. Study the figure below and use it to answer questions that follow.



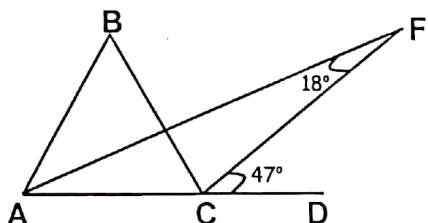
- Find the value of e .
- Find the size of angle AEC.

6. In triangle PQR, $PQ = QR$, angle PQS = 38° and angle SQR = 46°



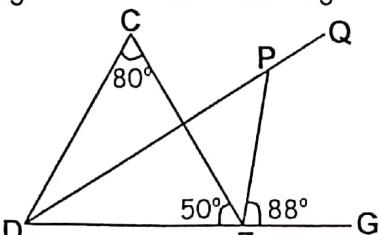
Find the size of angle QSP

7. In the figure below, ABC is an equilateral triangle. Angle AFC = 18° and FCD = 47°



Find the size of angle BAF in degrees.

8. In the figure below, DFG is a straight line. Line DQ bisects angle CDF, angle DCF = 80° , angle PFG = 88° and angle DFC = 50°



Find the size of angle FPQ.



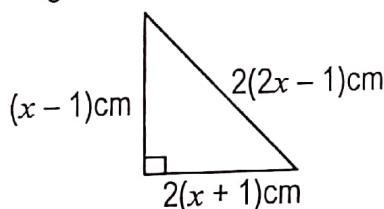
TOPIC 12: ALGEBRA

3. Simplify:
- $(5 + 2p) + (2p + 2)$
 - $(2w - 4) + (6w + 3)$
 - $(5y - 7) - (y + 1)$
 - $(2p + 6) - (5p - 2)$
 - $(2k - 4) - 2(4k - 2)$
 - $3 - 2(4 + x) + 3x$
4. Take away $2y + 5$ from $4y + 7$
5. Subtract $6p - 4$ from $7p + 3$
6. Subtract $4h - 6$ from $h - 5$
7. Reduce $y - 4$ by $2(3y - 2)$
8. Take away $5m + 3$ from $4 - m$
9. What must be added to $3h + 6$ to get $2h - 7$
10. Take away $3(p - 7)$ from 15.
11. Simplify $4 + (3r - 8)$
12. Simplify $a(2a - 2b)$
13. Add $4n + 3$ to $2n - 7$
14. There are $(2p - 3)$ boys and $(3p + 5)$ girls in a certain school. Find the algebraic expression for the total number of pupils in the school.
15. Mawere had $(6h - 7)$ pens. $2(h - 3)$ pens got lost. Find the algebraic expression for the remaining pens.
16. A school had $(5h - 14)$ pupils last year. This year, $(h + 3)$ pupils have left the school. Write the algebraic expression for the remaining number of pupils in the school.

More problems involving simplifying algebraic expressions

Example 1

Study the figure below.



- a) Find the perimeter of the figure.

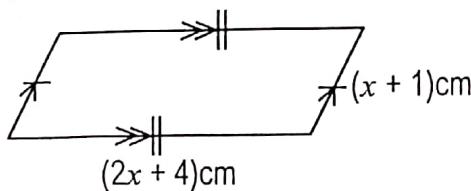
$$\begin{aligned} P &= 2(x + 1) + 2(2x - 1) + (x - 1) \\ P &= 2x + 2 + 4x - 2 + x - 1 \\ P &= 2x + 4x + x + 2 - 2 - 1 \\ P &= 7x - 1 \\ P &= (7x - 1) \text{ cm} \end{aligned}$$

- b) If $x = 2$, find the actual perimeter.

$$\begin{aligned} P &= (7x - 1) \text{ cm} \\ P &= 7 \times 2 \text{ cm} - 1 \text{ cm} \\ P &= 14 \text{ cm} - 1 \\ P &= 13 \text{ cm} \end{aligned}$$

Example 2

Below is a parallelogram.



- a) Find its perimeter.

$$\begin{aligned} P &= 2(2x + 4) + 2(x - 1) \\ P &= 4x + 8 + 2x - 2 \\ P &= 4x + 2x + 8 - 2 \\ P &= (6x + 6) \text{ cm} \end{aligned}$$

- b) If $p = 5$, find the actual perimeter of the parallelogram.

$$\begin{aligned} P &= (6x + 6) \text{ cm} \\ P &= (6 \times 5 + 6) \text{ cm} \\ P &= (30 + 6) \text{ cm} \\ P &= 36 \text{ cm} \end{aligned}$$

29(a)

TOPIC 12: ALGEBRA



Example 3

$$\text{Solve: } \frac{1}{2}(x+1) + \frac{1}{3}(x-2) = 4$$

$$\frac{1}{2}(x+1) + \frac{1}{3}(x-2) = 4$$

$$6 \times \frac{1}{2}(x+1) + 6 \times \frac{1}{3}(x-2) = 4 \times 6$$

$$3(x+1) + 2(x-2) = 24$$

$$3x+3+2x-4=24$$

$$3x+2x+3-4=24$$

$$5x-1=24$$

$$5x-1+1=24+1$$

$$\frac{5x}{5} = \frac{25}{5}$$

$$x = 5$$

Example 4

$$\text{Solve: } \frac{3}{p+2} = \frac{4}{p+1}$$

$$(p+2)(p+1) \frac{3}{p+2} = \frac{4}{p+1}(p+2)(p+1)$$

$$3(p+1) = 4(p+2)$$

$$3p+3 = 4p+8$$

$$3p-4p+3 = 4p-4p+8$$

$$-p+3 = 8$$

$$-p+3-3 = 8-3$$

$$\frac{-p}{-1} = \frac{5}{-1}$$

$$p = -5$$

Exercise

1. Solve the following equations.

$$a) \frac{k+2}{3} + \frac{22}{7} = 4$$

$$e) \frac{p+4}{3} - \frac{p}{5} = 8$$

$$i) \frac{y+6}{8} + \frac{y}{4} = 3$$

$$m) \frac{x+1}{2} - \frac{x-2}{3} = \frac{1}{8}$$

$$b) \frac{n+3}{4} + \frac{n}{2} = 6$$

$$f) \frac{d+3}{2} + \frac{d}{3} = 8$$

$$j) \frac{a+1}{3} + \frac{a}{4} = 2$$

$$n) \frac{3y}{2} - \frac{14y-3}{5} = \frac{y-4}{4}$$

$$c) \frac{d+5}{5} + \frac{d}{5} = 5$$

$$g) \frac{v-2}{8} + \frac{v}{6} = 3$$

$$k) \frac{3a+4}{2} = \frac{7a}{2} - 2$$

$$o) \frac{3x+1}{2} = \frac{4x-3}{3} + 3$$

$$d) \frac{x+5}{4} + \frac{x}{5} = 2$$

$$h) \frac{x+1}{3} + \frac{x}{2} = 4$$

$$l) \frac{p+6}{5} - p = \frac{p-6}{6}$$

$$p) \frac{p-3}{12} + \frac{3(p-1)}{8} = \frac{2}{3}$$

2. Solve:

$$a) \frac{3d+4}{2} = \frac{4d+7}{3}$$

$$d) \frac{7p+1}{6} = \frac{3p-1}{2}$$

$$g) \frac{4n-9}{3} = \frac{3n+5}{7}$$

$$b) \frac{3f+8}{4} = \frac{f+6}{2}$$

$$e) \frac{4d-3}{7} = \frac{6d+4}{9}$$

$$h) \frac{8b-20}{2} = \frac{6d+3}{3}$$

$$c) \frac{3x+1}{4} = \frac{x+3}{2}$$

$$f) \frac{c+11}{7} = \frac{2c+31}{21}$$

$$i) \frac{3m}{4} = \frac{16m-1}{20}$$

3. Solve:

$$a) \frac{5a+6}{8} = \frac{2}{3}(a+1)$$

$$d) \frac{m+3}{2} + 2m = \frac{8m+2}{3}$$

$$g) \frac{t+1}{4} = 2 - \frac{t}{4}$$

$$b) \frac{p+6}{5} - p = \frac{p-8}{2}$$

$$e) \frac{3m}{4} - \frac{2m-2}{3} + 2 = 3$$

$$h) \frac{3}{4}(4p-4) - \frac{2}{3}(2p-1) = 6$$

$$c) \frac{3a+2}{4} + \frac{a+4}{3} = 2a$$

$$f) \frac{3k+2}{4} - \frac{k+3}{3} = 6$$

$$i) \frac{3}{8}(2h+4) + \frac{5}{6}(3h-6) = 16$$

4. Solve:

$$a) \frac{4}{3y+1} = \frac{2}{y+2}$$

$$c) \frac{4}{3n+1} = \frac{2}{n+3}$$

$$b) \frac{2}{3g-1} = \frac{6}{7g+1}$$

$$d) \frac{3}{4k-9} = \frac{7}{3k+5}$$

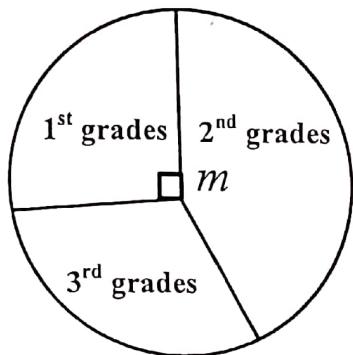
NO 28

TOPIC 6: DATA HANDLING



Example 2

The pie chart below shows the grades obtained by 60 pupils in a class. Use it to answer questions that follow.



- a) If 20 pupils obtained 3rd grade, find the value of m.

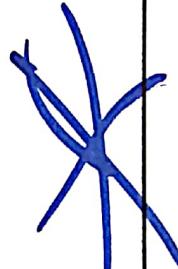
$$\frac{20}{60} \times 360^\circ = 120^\circ$$

$$m + 90^\circ + 120^\circ = 360^\circ$$

$$m + 210^\circ = 360^\circ$$

$$m + 210^\circ - 210^\circ = 360^\circ - 210^\circ$$

$$m = 150^\circ$$



- b) Find the number of pupils who got second grade.

$$\frac{150}{360} \times 60 = 25 \text{ pupils}$$

- c) How many more pupils got third grade than second grade?

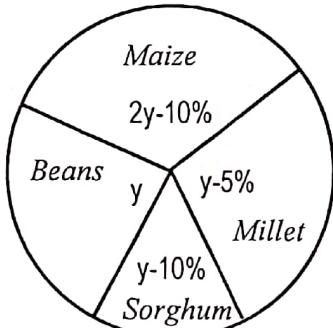
$$120^\circ - 90^\circ = 30^\circ$$

$$\frac{30}{360} \times 60 = 5 \text{ pupils}$$

Example 3

The pie chart below shows the total production of crops on a farm. The total production is 54 tonnes per season.

Find in kilograms, the mass of millet produced in the season.



Value of y

$$y + (2y-10\%) + (y-5\%) + (y-10\%) = 100\%$$

$$y + 2y + y - 10\% - 5\% - 10\% = 100\%$$

$$5y - 25\% = 100\%$$

$$5y - 25\% + 25\% = 100\% + 25\%$$

$$5y = 125\%$$

$$5y = \frac{125\%}{5}$$

$$y = 25\%$$

Total production in kg

$$54 \times 1000 \text{ kg} = 54000 \text{ kg}$$

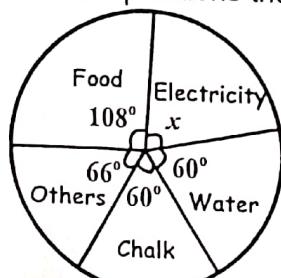
Millet produced

$$(y-5\%) = (25 - 5)\% \\ = 20\%$$

$$\frac{20}{100} \times 54000 \text{ kg} \\ 10800 \text{ kg}$$

Exercise.

1. The pie chart below shows how a school spends sh. 1440,000 in a week. Use it to answer questions that follow.



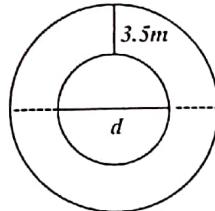
- a) Find the value of x

- b) How much money is spent on water?

- c) How much more is spent on food than electricity?

**Example 3**

A 3.5 metre wide road runs around a circular field whose circumference is 44 metres. Find the circumference of the road.

Diameter of the field

$$\pi d = \text{Circumference}$$

$$\frac{22}{7} \times d = 44 \text{ m}$$

$$7 \times \frac{22}{7} \times d = 44 \text{ m} \times 7$$

$$\frac{22d}{22} = \frac{44 \times 7}{22}$$

$$d = 14 \text{ cm}$$

Diameter of the road

$$3.5 \text{ m} + 14 \text{ m} + 3.5 \text{ m} = 21 \text{ m}$$

Circumference of the road

$$C = \pi d$$

$$= \frac{22}{7} \times 21 \text{ m}$$

$$= 22 \times 3 \text{ m}$$

$$= 66 \text{ m}$$

Example 4

A wire of length 330 metres was wound 500 times around a cylindrical tin. Find in centimetres, the diameter of the tin. (Use $\pi = \frac{22}{7}$)

Length in centimetres

$$330 \times 100 \text{ cm}$$

$$33000 \text{ cm}$$

Circumference

$$\frac{33000 \text{ cm}}{500} = 66 \text{ cm}$$

Diameter of the tin

$$\pi d = \text{Circumference}$$

$$\frac{22}{7} \times d = 66 \text{ cm}$$

$$7 \times \frac{22}{7} \times d = 66 \text{ cm} \times 7$$

$$\frac{22d}{22} = \frac{66 \times 7}{22}$$

$$d = 21 \text{ cm}$$



The diameter of the tin is 21cm

Example 5

Njoroge takes half an hour to ride a distance of 2.97 kilometers from her home to school on a bicycle. If she makes 50 revolutions per minute, Find the diameter of the wheel of her bicycle in centimetres. (Use $\pi = \frac{22}{7}$)

Distance in cm

$$1 \text{ km} = 100,000 \text{ cm}$$

$$2.97 \text{ km} = \frac{297}{100} \times 100000 \text{ cm}$$

$$= 297000 \text{ cm}$$

Number of revolutions

$$50 \times (\frac{1}{2} \times 60)$$

$$50 \times 30$$

$$1500 \text{ revolutions}$$

Circumference of the wheel

$$\frac{297000 \text{ cm}}{1500} = 198 \text{ cm}$$

Diameter of the wheel

$$\pi d = \text{Circumference}$$

$$\frac{22}{7} \times d = 198 \text{ cm}$$

$$7 \times \frac{22}{7} \times d = 198 \text{ cm} \times 7$$

$$\frac{22d}{22} = \frac{198 \times 7}{22}$$

$$d = 63 \text{ cm}$$



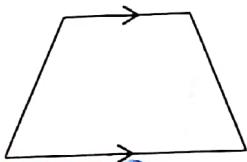
TOPIC 7:

GEOMETRIC CONSTRUCTION



6. Construct a parallelogram
 - a) STUV in which $ST = 4\text{cm}$, $SU = 6\text{cm}$ and angle $T = 120^\circ$.
 - b) VWXY where $VW = 6\text{cm}$, $WY = 8.5\text{cm}$ and $VWX = 75^\circ$.
7. a) Construct a parallelogram BEST where $ES = 7.5\text{cm}$, $BES = 45^\circ$ and diagonal $BS = 4.5\text{cm}$. Drop a perpendicular from B to meet ES at K.
b) Measure
 - i) line BK
 - ii) line ST
8. a) Construct a parallelogram BCDE in which $BC = 7\text{cm}$, diagonal $BD = 10\text{cm}$ and diagonal $CE = 6\text{cm}$.
b) Measure
 - i) line CD
 - ii) angle EDC
9. a) Construct a parallelogram KLMN where $NK = 5.5\text{ cm}$, $KM = 5\text{cm}$ and $NL = 9\text{cm}$. Drop a perpendicular from M to meet line NK at P.
b) Measure
 - i) line MP
 - ii) angle NML
10. a) Construct a parallelogram ABCD such that $AD = BC = 9\text{cm}$. Bisect line AD and let the bisector meet line AD at point M. Mark point B on the bisector such that line $MB = 4\text{cm}$. Join point A to B and complete the construction of the parallelogram.
b) Measure
 - i) line AB
 - ii) angle ABC

TRAPEZIUM



Properties

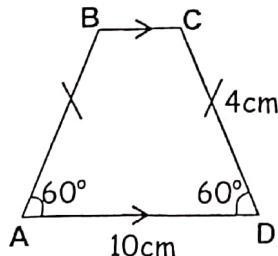
Has two sides parallel but not equal.

Base angles of an isosceles trapezium are equal

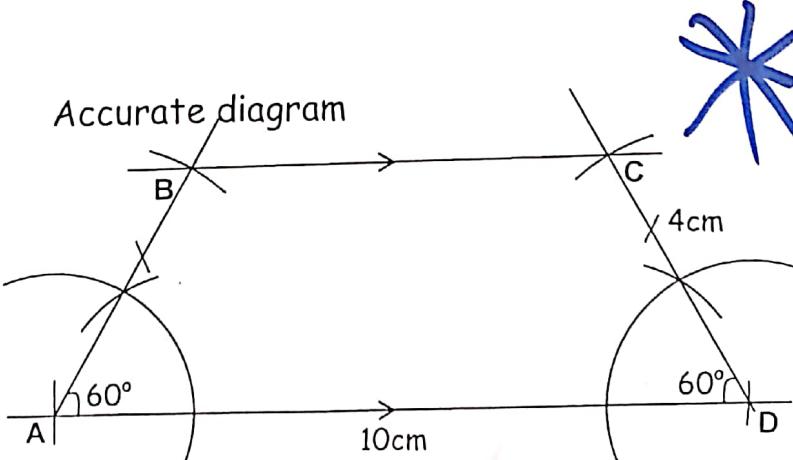
Example 1

Construct a trapezium ABCD such that angle $BAD = ADC = 60^\circ$, $AB = CD = 4\text{cm}$ and line $AD = 10\text{cm}$.

Sketch



Accurate diagram



TOPIC 5: FRACTIONS (Percentages)


14. Musiraamu went to a market with sh. 30,000. He bought the following items.

2kg of rice at sh. 3200 per kg.

1½ kg of meat at sh. 12000 per kg.

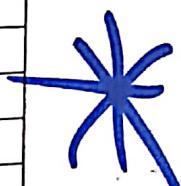
500g of salt at sh. 1800 per kg

A sachet of cooking oil at sh. 1700

If he was given sh. 5700 as change. Find his percentage discount.

15. Eddy bought the following items in the table below.

ITEM	QUANTITY	UNIT COST	TOTAL COST
Sugar	_____	sh. 4000	sh. 12000
Books	5	_____	sh. 13000
Pens	_____	sh. 500	_____
Geometry set	2	sh. 5500	_____
Total expenditure		sh. 44,000	



a) Complete the table above.

b) If he paid sh. 42900, find the percentage discount.

16. A house wife went to market and bought the following items.

ITEM	QUANTITY	UNIT COST	TOTAL COST
Omo	2 sachets	sh. 1,000 each	_____
Maize flour	4kg	_____	sh. 10,000
Chicken	_____	sh. 15,000	_____
Total expenditure		sh. 42,000	



a) Complete the table above.

b) If she paid sh. 39900, find the percentage discount.

17. Ssenkebe went to a shop with sh. 25000 and bought the following items.

ITEM	UNIT COST	TOTAL COST
_____ kg of sugar	sh. 3000	sh. 6000
3kg of rice	_____	sh. 12000
1½ litres of cooking oil	sh. 6000	_____
Total expenditure		_____

If he remained with sh. 4700, find the percentage discount.

18. The marked price of a radio was sh. 60000. Due to high demand, it was increased by 20%. A customer paid sh. 65000 for the radio. Calculate the percentage discount.

19. The marked price of a pineapple was sh. 4000. It was then decreased by 10%. A woman bought it at sh. 2700. Find the percentage discount.

No. 24

TOPIC 2: WHOLE NUMBERS



Finding the unknown base

Revision tips

- First change any number in non-decimal base into base ten.
- Then solve the resulting equation.

Example 1

Given that $24_m = 14_{ten}$. Find the value of m

$$\begin{aligned}
 24_m &= 14_{ten} \\
 (2xm^1) + (4xm^0) &= 14 \\
 (2xm) + (4x1) &= 14 \\
 2m + 4 &= 14 \\
 2m + 4 - 4 &= 14 - 4 \\
 2m &= 10 \\
 \underline{2m} &= \underline{10} \\
 2 & 2 \\
 m &= 5
 \end{aligned}$$

Example 2

Given that $34_n = 112_{four}$. Find the base represented by n

$$\begin{aligned}
 34_n &= 112_{four} \\
 (3xn^1) + (4xn^0) &= (1x4^2) + (1x4^1) + (2x4^0) \\
 (3xn) + (4x1) &= (1x4 \times 4) + (1 \times 4) + (2 \times 1) \\
 3n + 4 &= 16 + 4 + 2 \\
 3n + 4 &= 22 \\
 3n + 4 - 4 &= 22 - 4 \\
 \underline{3n} &= \underline{18} \\
 3 & 3 \\
 n &= 6 \\
 n &\text{ is base six}
 \end{aligned}$$

Exercise 2:17

1. Find the value of the unknown base.

- | | | |
|------------------------|-------------------------|---------------------------|
| a) $11_y = 3_{ten}$ | i) $23_{six} = 21_f$ | q) $25_p = 201_{three}$ |
| b) $32_r = 17_{ten}$ | j) $43_n = 123_{four}$ | r) $34_p = 112_{four}$ |
| c) $43_h = 23_{ten}$ | k) $33_m = 102_{four}$ | s) $22_a = 110_{four}$ |
| d) $12_f = 101_{two}$ | l) $25_w = 122_{three}$ | t) $23_q = 1101_{two}$ |
| e) $24_k = 32_{four}$ | m) $32_g = 104_{five}$ | u) $23_t = 10011_{two}$ |
| f) $23_y = 31_{four}$ | n) $32_p = 113_{four}$ | v) $51_n = 1011_{three}$ |
| g) $34_d = 31_{eight}$ | o) $112_{three} = 32_r$ | w) $32_x = 110_{four}$ |
| h) $31_{six} = 34_b$ | p) $211_{three} = 34_y$ | x) $10011_{three} = 85_p$ |

2. Find the value of the unknown base.

- | | | |
|-------------------------|------------------------|--------------------------|
| a) $101_p = 12_{three}$ | c) $201_n = 53_{six}$ | e) $302_t = 122_{six}$ |
| b) $102_h = 21_{five}$ | d) $32_{nine} = 104_b$ | f) $204_g = 1030_{four}$ |

3. Solve:

- | | | |
|------------------------|-------------------------|------------------------------------|
| a) $y^2 = 10000_{two}$ | c) $2p^2 = 101_{seven}$ | e) $y^2 - 12_{three} = 21_{five}$ |
| b) $b^2 = 21_{four}$ | d) $3g^2 = 143_{five}$ | f) $2h^2 + 111_{two} = 121_{four}$ |

NO. 23

TOPIC 3: OPERATIONS ON WHOLE NUMBERS



14. A box of papers contains five reams of 500 sheets each.
- How many sheets of papers are in the box?
 - How many books of 24 sheets can be made from 6 boxes of papers?
15. A wire of length 161 metres was shared by boys of P.7 class. The average length of wire each boy got was 23 metres. The number of boys is 18 less than that of girls.
- Find the number of boys who shared the wire.
 - Calculate the total number of pupils in P.7 class.
16. A man sells mangoes in heaps of fives and eights. A heap of five mangoes costs sh 500 and a heap of eight mangoes costs sh 1000. He had 12 heaps of five and 14 heaps of eight mangoes.
- How many mangoes did he have altogether?
 - How much money did he get after selling all the mangoes?
17. A businessman had 200 bags of maize flour each weighing 50kg. A pick up carries 2000kg per trip.
- Work out the number of bags the pickup can carry per trip.
 - If the businessman spends sh 25000 per trip, how much money will he pay to transport all the flour from the milling machine to his soap.
18. A school hired 10 bus and 5 taxis to take all pupils in the school for a tour. Each bus carried 33 pupils and 14 pupils by each taxi. Each pupil paid sh 45000.
- How many pupils are in the school?
 - How much money did the pupils pay altogether?
19. Kaliso's poultry farm produces 3000 eggs in a day. If the eggs are packed in trays of 30 eggs each.
- How many trays of eggs does he produce in a week?
 - If each tray costs sh 9500, how much money does he get in a week?
20. A bus left Ssembabule for Masaka city with 60 passengers. At Kagologolo, 13 got out, at Kitaasa, 9 boarded and at Kawoko, 7 got out. It then travelled straight to Masaka city and the rest of the passengers got out.
- How many passengers reached Masaka city?
 - How much money was collected from those reached Kawoko if each paid sh 6500?
21. A trader bought 600 oranges at sh. 250 each. The trader then sold 200 of the oranges at sh. 300 each and the rest at sh. 350 each. Calculate the profit he made.
22. Work out: $3 \div \frac{1}{2}$ of 4
23. Work out: $1+2+3(1+2+3)$

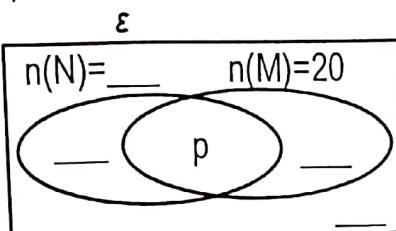
NO. 22

TOPIC 1: SET CONCEPTS



7. In a class, some pupils like reading novels (N), 20 pupils like reading magazines (M), 9 like reading novels only, p like reading both novels and magazines while $p - 1$ do not like reading any of the two. The number of pupils who like reading magazines only is 3 times the number of pupils who like reading both novels and magazines.

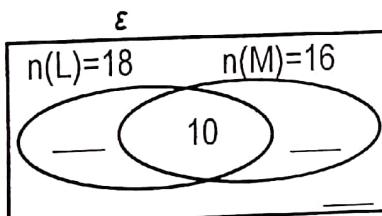
a) Use the given information to complete the Venn diagram below.



- b) Find the value of p
- c) Find the number of pupils who like reading novels altogether.

8. Ludo (L) and Mweso (M) are indoor games played by people in our village. 18 people play Ludo, 16 play Mweso, 10 play both games, 2p - 8 play Mweso only while 4 play neither of the two games.

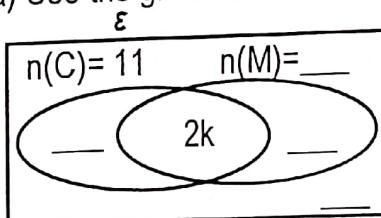
a) Use the given information to complete the Venn diagram below.



- b) Find the value of p.
- c) Calculate the total number of people who play indoor games in our village.

9. On Sunday, people went to different important places; the church (C) and the market (M) 7 went to the market only, 11 went to church, 2k went to both places, 5 went to neither of the two places while 3 went to church only.

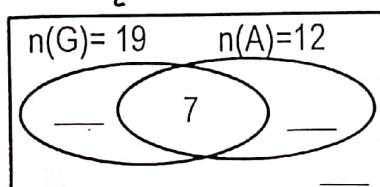
a) Use the given information to complete the Venn diagram below.



- b) Find the number of people who went to the market.

10. In a group of security guards, 19 use guns (G), 12 use arrows (A), 7 use both arrows and guns while g use neither of the two weapons. The number of security guards who use guns only is 6 times the number of security guards who use none of the two weapons.

a) Use the given information to complete the Venn diagram below.



- b) How many security guards use one type of weapon only?



TOPIC 5: FRACTIONS (Decimal fractions)


2. Work out

a) $\frac{0.4 \times 0.2}{0.8}$

f) $\frac{0.28 \times 0.08}{1.4 \times 0.4}$

k) $\frac{0.4 + 0.4}{0.4 \times 4}$

b) $\frac{0.8 \times 0.6}{0.15}$

g) $\frac{0.28 \times 0.81}{0.24 \times 4.2}$

l) $\frac{2.7 \times 4.8}{2.4 \times 3.6}$

c) $\frac{0.12 \times 0.6}{0.06}$

h) $\frac{0.64 \times 0.55}{0.11 \times 0.08}$

d) $\frac{0.25 \times 5.4}{0.045}$

i) $\frac{0.25 \times 0.4}{0.03 + 0.02}$

e) $\frac{0.12 \times 5.4}{0.03 \times 0.6}$

j) $\frac{1.5 \times 0.6}{1.2 - 0.3}$

m) $\frac{1.45 + 2.15}{0.72 - 0.5}$

n) $\frac{0.75 + 0.25}{0.65 - 0.4}$

o) $\frac{0.69 + 0.15}{(0.8)^2}$



3. Simplify:

a) $\frac{0.8}{1.6 \div 0.1}$

e) $\frac{2.4 \times 0.54}{1.08 \div 1.5}$

e) $\frac{0.96 + 0.24}{1.44 \div 1.6}$

b) $\frac{0.4 \times 0.2}{1.2 \div 1.5}$

d) $\frac{0.24 \times 0.6}{0.08 \times 0.5}$

f) $\frac{0.48 \times 0.2}{0.192 \times 1.2}$

4. Work out:

a) $(0.62 \times 0.8) - (0.17 \times 0.8)$

c) $(11.876 \div 0.75) + (0.124 \div 0.75)$

b) $(5.1 \div 0.14) - (0.9 \div 0.14)$

d) $6 \div 0.75$ of 1.2

5. Given that $\frac{x \times 0.6}{0.08 \times 0.5} = 1.8$. Find the value of x6. Given that $\frac{1.2 \times y}{3.2 - 2.96} = 0.8$. Find the value of y
Word problems involving mixed operations on decimals
Example

Mzee Kiviiри sold full jerry cans of cooking oil at sh. 25000 each. The total amount of cooking oil Mzee Kiviiри sold was 24.3 litres. Given that each jerry can holds 4.86 litres when full. How much money did he collect altogether?

Jerry cans sold

$24.3 \div 4.86$

$$\begin{array}{r} 243 \\ \div 4.86 \\ \hline 10 \quad 100 \\ 243 \quad 100 \\ \hline 10 \quad 486 \\ 5 \end{array}$$

5 jerry cans

Amount of money collected

sh. 25000

$$\begin{array}{r} x \\ \times \quad 5 \\ \hline \end{array}$$

sh. 125000

UNIQUE

UPPER PRIMARY MATHEMATICS

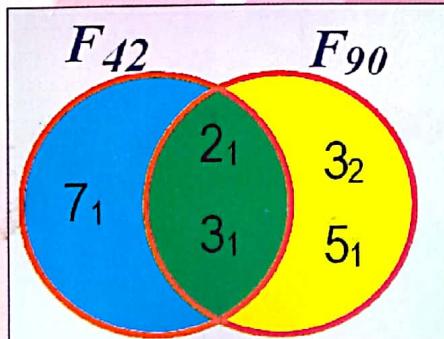
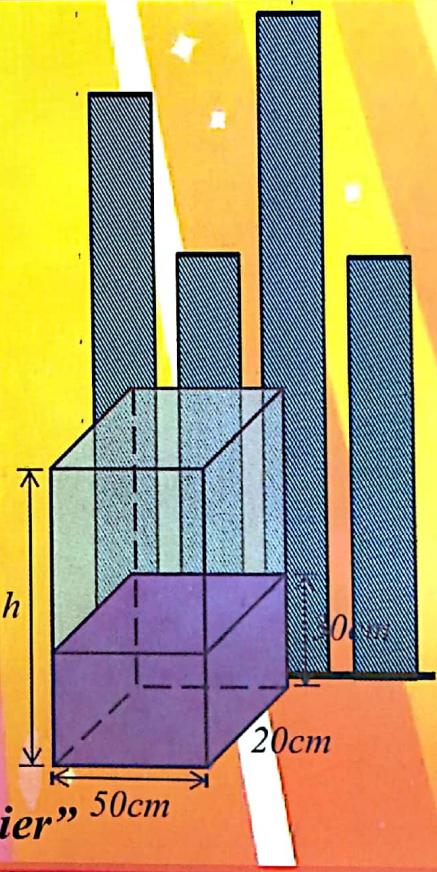
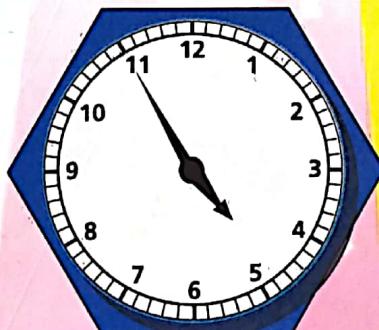
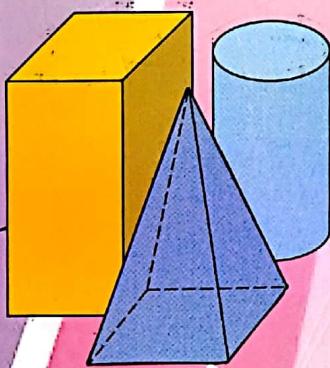
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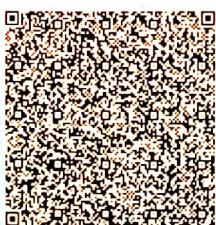
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